REMARKS

Claims 1, 3-6, 10, 11, 12, 14, 16-19, 23, 24, 26, 28-31, and 35-40 are all the claims presently pending in the application. Claims 2, 7-9, 12, 15, 20-22, 25, 27, 32-34, and 37 are canceled. Various claims have been amended.

Applicants also note that, notwithstanding any claim amendments herein or later during prosecution, Applicants' intent is to encompass equivalents of all claim elements.

Claims 10 and 40 stand rejected under U.S.C. § 112, second paragraph, as allegedly indefinite. Applicants believe the above claim amendments appropriately address the Examiner's concerns and respectfully request that the Examiner reconsider and withdraw this rejection.

Claims 1, 3-6, 13, 14, 16-19, 26, and 23-31 stand rejected either under 35 U.S.C. § 102(b) as anticipated by "PetroSPIRE: A multi-modal content-based retrieval system for petroleum applications" by Bergman et al. Claim 38 stands rejected either as anticipated by Bergman, or alternatively, as rejected under 35 U.S.C. § 103(a) as unpatentable over the Bergman, further in view of "Comparing Texture Feature Sets for Retrieving Core Images in Petroleum Application" by Li et al. Claims 10, 11, 23, 24, 35, 36, 39, and 40 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Bergman/Li, further in view of "A Framework for Mining Sequence Database at Multiple Abstraction Levels" by Yu.

These rejections are respectfully traversed in the following discussion.

I.   THE CLAIMED INVENTION

An exemplary embodiment of the claimed invention, as defined by, for example, independent claim 1, is directed to a method for storing information for one or more semantic objects derived from raw data. A semantic object extracted from the raw data and classified to be the semantic object is received, the received semantic object having one or more attributes. The following is generated: a summary of attributes of the semantic object, by calculating one or more statistics of one or more of the one or more attributes of the received semantic obect; a

confidence level of the received semantic object that quantifies a degree of certainty that the received semantic object has been correctly classified and/or labeled; and a compact representation of raw data of the received semantic object. Also generated is <u>indexing information for one or more of the summary of attributes, the confidence level, and the compact representation of the semantic object</u>. The <u>semantic object, along with its associated summary of attributes, confidence level, compact representation, and indexing information is stored in a semantic object database associated with a database storing the raw data</u>.

Conventionally geological seismic survey data has been visualized to assist geologists in tasks, such as for constructing three dimensional reservoir models. This data may be used to directly create images that may be viewed. These images may be annotated and saved. However, the amount of this seismic survey data is very large and it is very difficult to search and analyze the data in order to identify seismic regions that have geological characteristics which are interesting to geologists. Such enormous amounts of data make it very difficult for a geologist to identify features in the geology that is being visualized.

Additionally, the amount of data that is collected has so far outpaced the ability for conventional systems to store the data.

In stark contrast, the present invention provides a <u>semantic object</u> from geological seismic survey data and then <u>summarizes, indexes, and stores attributes of the semantic object</u>. In this manner, the geological seismic survey data may be analyzed much more efficiently and easily.

II.   THE PRIOR ART REJECTIONS

A.   The Bergman et al. reference

Regarding the rejection of claims 1, 3-6, 13, 14, 16-19, 26, 23-31, and 38, the Examiner alleges that the Bergman et al. reference teaches the claimed invention, and, relative to claim 38, that Bergman renders this claim obvious if further modified by Li. Moreover, the Examiner alleges that Bergman/Li, when further modified by Yu, renders obvious claims 10, 11, 23, 24, 35, 36, 39, and 40.

Applicants again submit, however, that there are elements of the claimed invention which are neither taught nor suggested by Bergman or any of the other references currently of record.

More specifically, none of these references teach or suggest storing either the generation of an index for the additional information generated for the semantic objects or the of the semantic objects along with their associated summary of attributes, confidence level, and indexing information. The Examiner vaguely makes an attempt to justify these limitations by noting that Bergman suggests pre-extracting semantic objects and stores them with their boundary information and associated attributes such as size and centroid (see Office Action, page 3, middle of full paragraph in middle of page).

However, even giving the benefit of doubt to the Examiner's reliance, this description relied upon by the Examiner fails to demonstrate an index as being generated for these attributes, as required by the plain meaning of the claim language of the independent claims. This indexing feature of the claimed invention permits a user to quickly view the semantic objects in overview, as well as conduct query searches over the collection of semantic objects themselves or, selectively, to retrieve the underlying raw data associated with any of the semantic objects.

Hence, turning to the clear language of the claims, in Bergman there is no teaching or suggestion of: " … generating indexing information for the summary of attributes, the confidence level, and the compact representation of said semantic object; and storing the semantic object along with its associated summary of attributes, confidence level, compact representation, and indexing information in a semantic object database associated with a database storing said raw data", as required by independent claim 1. The remaining independent claims have similar wording.

Therefore, the Bergman et al. reference does not teach or suggest each and every element of the claimed invention and the Examiner is respectfully requested to withdraw this rejection of claims 1, 3-6, 13, 14, 16-19, 26, 23-31, and 38,.

B.   The Bergman et al. reference in view of the Li et al. reference

Regarding the rejection of claim 38, the Examiner alleges that Li would have been combined with the Bergman to form the claimed invention. Applicants submit, however, that

these references would not have been combined and, even if combined, the combination would not teach or suggest each and every element of the claimed invention, since secondary reference Li fails to overcome the fundamental deficiency identified above that Bergman fails to even incorporate the feature summarizing and indexing semantic objects.

Therefore, the Examiner is respectfully requested to withdraw the rejection of claim 38.

C. The Bergman et al. reference in view of the Yu et al. reference

Regarding the rejection of claims 10, 11, 23, 24, 35, 36, 39, and 40, the Examiner alleges that Yu would have been combined with the Bergman to form the claimed invention. Applicants submit, however, that these references would not have been combined and, even if combined, the combination would not teach or suggest each and every element of the claimed invention, since secondary reference Yu fails to overcome the fundamental deficiency identified above that Bergman fails to even incorporate the feature of summarizing and indexing semantic objects.

Therefore, the Examiner is respectfully requested to withdraw the rejection of claims 10, 11, 23, 24, 35, 36, 39, and 40.

III.   FORMAL MATTERS AND CONCLUSION

In view of the foregoing amendments and remarks, Applicants respectfully submit that claims 1, 3-6, 10, 11, 12, 14, 16-19, 23, 24, 26, 28-31, and 35-40, all the claims presently pending in the Application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the Application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0510.

Respectfully Submitted,

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CERTIFICATION OF TRANSMISSION

I certify that I transmitted via EFS this Amendment under 37 CFR §1.116 to Examiner H. Pham on March 19, 2009.

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